

Morphological abnormality in the longnose stingray *Dasyatis guttata* (Myliobatiformes: Dasyatidae) in the Colombian Caribbean

by

Andrea RAMÍREZ-HERNANDEZ (1, 2), Paola PALACIOS-BARRETO (1, 2),
Juan Diego GAITÁN-ESPITIA* (1, 3), Francisco REYES (2) & John RAMÍREZ (2)

RÉSUMÉ. - Anomalie morphologique chez la raie *Dasyatis guttata* (Myliobatiformes: Dasyatidae) dans la Caraïbe colombienne.

Une anomalie morphologique du cartilage rostral d'un spécimen mâle de la raie *Dasyatis guttata* (Bloch & Schneider, 1801), capturé sur la côte nord de la caraïbe colombienne par des pêcheurs artisanales, est documentée pour la première fois.

Key words. - Dasyatidae - *Dasyatis guttata* - Stingray - Caribbean - Elasmobranchs - Malformation - Teratogeny.

Several morphological abnormalities in elasmobranchs have been reported in the past decades. In sharks the principal deformities have been noted in the cephalic region and the axial skeleton (Macini *et al.*, 2006) while in batoid rays reported malformations and morphological abnormalities are associated with lack of fusion of the pectoral fins to the head (Rosa *et al.*, 1996). The batoid family Dasyatidae, otherwise known as whiptail stingrays, contains 70 species within 8 genera of which *Dasyatis* accounts for 40 species that occur worldwide in tropical to warm temperate waters (McEachran and Carvalho, 2002). One of the most representative species of this genus in the Colombian Caribbean is the longnose stingray *Dasyatis guttata*, which is a commercially important marine resource for the artisanal fisheries communities (Gaitán-Espitia and López-Peña, 2008). A specimen of *D. guttata* with morphological abnormalities was caught on 24 September 2006, and is described in the present study.

MATERIALS AND METHODS

The specimen was captured on the northern coast of Colombia by the artisanal Wayúu fishery community of Tawayá (11°44'10" N; 72°36'22.9" W), using a gillnet with mesh size of 16 cm at 7.5 m depth. The specimen was fixed in 10% formalin and donated by the Ecosfera Foundation to the Center of Investigation in Zoology and Marine Ecology (CIZEM), where it was measured and analysed with the identification keys of McEachran and Carvalho (2002), assigning the fish collection code CECDG001 (Fig. 1). Morphometric measurements were taken to the nearest 0.1 mm (Tab. I).

RESULTS AND DISCUSSION

The captured individual was an adult male of 1023 mm estimated total length, 520 mm disk width and 5000 g total weight, with normal coloration. The rostrum extension of the cartilaginous neurocranium was incomplete because the anterior margins of the pectoral fins were not fused, and the maximum distance between the tips was 100 mm and the lower 20 mm (Fig. 2). This deformity affected the distribution of the ampullae of Lorenzini, electrosen-

Table I. - Morphometric measurements (mm) of the specimen of *Dasyatis guttata* with rostral cartilage malformation.

Measurement	CECDG001	
	Length (mm)	% L_T
Total length	1023	100.0
Disk length	490	47.9
Disk width	520	50.8
Eye length	12	1.17
Interorbital space	65	6.3
Preorbital length	130	12.7
Space between spiracles	84	8.2
Prespiracular length	152	14.8
Preanal length	397	38.8
Internarial space	61	5.9
Mouth length	53	5.2
Clasper inner length	134	13.1
Weight (g)	5000	

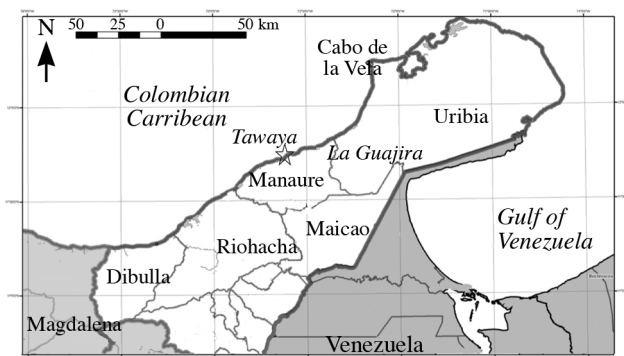


Figure 1. - Map of the Guajira region in the North coast of the Colombian Caribbean showing the capture site of the adult *Dasyatis guttata* with rostral cartilage malformation.

- (1) Centro de Investigaciones en Zoología y Ecología Marina, CIZEM, Santa Marta, COLOMBIA. [andymarce81@yahoo.es] [paolita808@yahoo.com]
 - (2) Grupo de Investigaciones Bioeconómicas Marinas y Pesqueras, Fundación Ecosfera, Riohacha, COLOMBIA. [f.reyes@fundacionecosfera.com] [j.ramirez@fundacionecosfera.com]
 - (3) Instituto de Ecología y Evolución, Facultad de Ciencias, Universidad Austral de Chile, Casilla 567 Valdivia, CHILE.
- * Corresponding author [juadiegaitan@gmail.com]

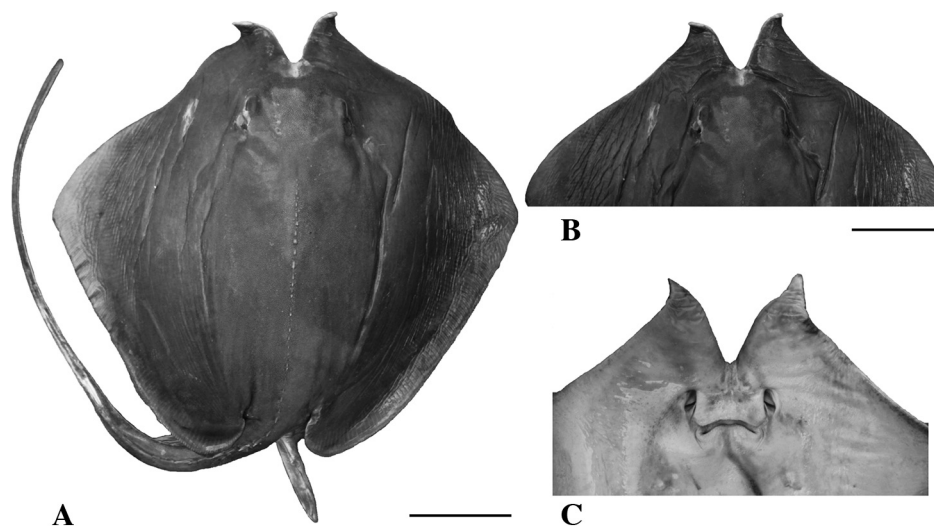


Figure 2. - Adult male of *Dasyatis guttata* with rostral cartilage malformation. **A**: Dorsal view of the whole body; **B**: Dorsal view of the neurocranium abnormality; **C**: Ventral view of the neurocranium abnormality. Scale bars = 10 cm.

sitive organs that, along with the olfactory organs, form the main sensory system for foraging and navigation in skates, rays and sharks (Fishelson and Baranes, 1998). Despite the physiological and behavioural disadvantages associated with this abnormality, it was evident that the specimen was in apparent good physical condition. According to data from morphometric measurements, clasper development and calcification (Tab. I, Fig. 2), this deformity did not appear to affect the early stages of development and growth (or affects were not apparent). The origin of morphological abnormalities in elasmobranchs may be associated with several factors, such as asymmetrical stresses to the vertebral column, parasitic infection, arthritis, injury, tumour, malnutrition (Heupel *et al.*, 1999); additionally genetic anomalies and unfavourable environmental conditions during embryonic development may cause deformities (Mancini *et al.*, 2006). Bigelow and Schroeder (1953) concluded that the separation of pectoral fins and the head are a normal characteristic in the first stages of embryonic development in batoid fishes, so it is plausible that the deformation described here was the result of a genetical abnormality caused by a defect in the early stages of disk development (Oldfield, 2005). Other morphological malformations documented for species of the genus *Dasyatis* have been reported, such as aberrant pectoral fins in *D. akajei* (Honma and Sugihara, 1971), separation of the anterior margins of the pectoral fins from the head in *D. brevis* (Lamilla *et al.*, 1995), and *D. longa* (Escobar-Sánchez *et al.*, 2008). According to fishermen from artisanal communities in the North coast of the Colombian Caribbean this kind of malformation had been observed in other individuals of *Dasyatis* sp. However, this is the first description of morphological abnormalities in the longnose stingray *Dasyatis guttata* in the Caribbean.

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